

Atty. Dkt. No. 200311812-1

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A peristaltic pump comprising:
a plurality of movable occluding surfaces;
a plurality of independently movable occlusion fingers, wherein the plurality of fingers are integrally formed as a single unitary body; and
a plurality of springs supported so as to independently resiliently bias biasing the plurality of occlusion fingers.
2. (Original) The pump of Claim 1, wherein the springs comprise leaf springs.
3. (Original) The pump of Claim 1, wherein the springs are integrally formed as part of a single unitary body.
4. (Currently Amended) The pump of Claim 1 including rollers rotatably supported so as to be adapted to extend proximate the tubes, wherein the rollers provide the occluding surfaces.
5. (Currently Amended) The pump of Claim 1, wherein each finger includes a channel configured to partially receiving one of the tubes receive a tube.
6. (Original) The pump of Claim 1, wherein the fingers extend along an arc.
7. (Original) The pump of Claim 1 including fluid couplers supported adjacent each of the occlusion fingers.
8. (Currently Amended) The pump of Claim 1 including a channeling member supported proximate the fingers and configured to channel at least one tube.
9. (Original) The pump of Claim 1, wherein the fingers are integrally molded as a single unitary body out of a polymeric material.
10. (Original) The pump of Claim 1, wherein the fingers pivot about a common axis.

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11. (Currently Amended) The pump of Claim 1, wherein the occluding surfaces are configured to move along a path into and out of engagement with the tubes and wherein the fingers pivot about a substantially common axis adjacent the path.

12. (Original) The pump of Claim 1, wherein the occluding surfaces rotate about a first common axis and wherein the springs pivot about a second axis parallel to the first axis.

13. (Currently Amended) The pump of Claim 1, wherein the occluding surfaces are configured to move along a path into and out of engagement with the tubes, wherein each of the fingers has a first end and a second opposite end and wherein the first end and the second opposite end extend adjacent to the path.

14. (Currently Amended) The pump of Claim 1 including:
fluid conduits configured to be fluidly coupled to the pumping tubes; and
a holder coupled to the fingers and the springs, wherein the holder includes a surface against which the fluid conduits extend.

15. (Original) The pump of Claim 14, wherein the holder is removably and directly coupled to the fingers without fasteners.

16. (Original) The pump of Claim 15, wherein the springs are removably and directly coupled to the holder without fasteners.

17. (Original) The pump of Claim 16, wherein the springs are releasably coupled to and engaging to the fingers without fasteners.

18. (Original) The pump of Claim 14 including fluid couplers coupled to and supported by the holder.

19. (Currently Amended) The pump of Claim 14 including a channeling member extending from the surface and configured to channel at least one tube.

20. (Original) The pump of Claim 1 including pumping tubes, wherein the occluding surfaces move along a path into and out of engagement with the tubes and wherein the pump further includes:

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first fluid couplers connected to a first end of the pumping tubes adjacent the path; and

second fluid couplers connected to a second end of the pumping tubes adjacent the path.

21. (Original) The pump of Claim 1 including fluid couplers coupled to and supported by fingers.

22. (Original) The pump of Claim 1 including a tube channeling member supported proximate the fingers.

23. (Original) The pump of Claim 1 including:

pumping tubes; and

first fluid conduits fluidly coupled to a first end of the pumping tubes, wherein the pumping tubes have a first flow area of cross sectional flow area and wherein the first fluid conduits have a second smaller interior cross sectional flow area.

24. (Original) The pump of Claim 23 including fluid couplers between the pumping tubes and the first fluid conduits.

25. (Original) The pump of Claim 23, wherein the pumping tubes extend on a first side of the fingers and wherein the first fluid conduits extend on a second opposite side of the fingers.

26. (Original) The pump of Claim 25 including second fluid conduits fluidly coupled to a second opposite end of the pumping tubes, wherein the second fluid conduits extend on the second side of the fingers.

27. (Original) The pump of Claim 23 including second fluid conduits fluidly connected to a second opposite end of the pumping tubes.

28. (Original) The pump of Claim 27, wherein the pumping tubes each have a first interior cross sectional flow area and wherein the second fluid conduits each have a second smaller interior cross sectional flow area.

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29. (Original) The pump of Claim 23 including fluid sensors at least proximate an interior of the pumping tubes.

30. (Currently Amended) The pump of Claim 23 29 including fluid couplers connected to the pumping tubes, wherein the fluid sensors are located within the fluid couplers.

31. (Currently Amended) A peristaltic pump comprising:
movable occluding surfaces;
independently movable occlusion fingers opposite the occluding surfaces;
springs independently resiliently biasing the plurality of occlusion fingers, wherein the springs are integrally formed as part of a single unitary body; and
a drive system configured to move the occluding surfaces.

32. (Currently Amended) A peristaltic pump comprising:
movable occluding surfaces;
independently movable occlusion fingers opposite the occluding surfaces;
springs independently resiliently biasing the occlusion fingers; and
fluid couplers supported by the fingers.

33. (Currently Amended) A peristaltic pump comprising:
pumping tubes, each tube having a flexible wall portion;
movable occluding surfaces on a first side of the pumping tubes;
independently movable occlusion fingers on a second opposite side of the tubing tubes;
springs independently resiliently biasing the occlusion fingers towards the pumping tubes;
a drive system configured to move the occluding surfaces so as to compress the tubes against the fingers; and
fluid couplers connected to the pumping tubes, wherein at least one of the fluid couplers includes a fluid sensor.

34. (Currently Amended) A peristaltic pump comprising:
movable occluding surfaces;

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an occlusion including:

a base portion; and

occlusion fingers pivotally coupled to the base portion and extending opposite the surfaces;

a holder releasably and directly coupled to the base portion of the occlusion without fasteners;

a spring system including:

a base portion releasably and directly coupled to the holder without fasteners; and

springs extending from the base portion into engagement with the fingers; and a drive system configured to move the occluding surfaces.

35. (Currently Amended) A peristaltic pump comprising:

fluid passages, wherein each fluid passage includes a compressible portion;

a first unit having independently movable surfaces adjacent the compressible portion of each of the fluid passages;

a second unit integrally formed as a single unitary body having biasing means for resiliently biasing the occlusion independently movable surfaces against movement away from the compressible portions; and

means for compressing the compressible portions of the fluid passages to move fluid along the fluid passages.

36. (Currently Amended) An occlusion for use in a peristaltic pump, the occlusion comprising:

independently movable occlusion fingers, wherein the fingers are integrally formed as a single unitary body and, wherein each of the fingers includes means for retaining a tube in place.

37. (Canceled)

38. (Currently Amended) The occlusion of claim 36-74, wherein each of the fingers is configured to support a fluid coupler.

39. (Canceled)

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40. (Original) A printer comprising:

- an ink dispensing pen;
- ink reservoirs; and
- a pump comprising:
 - pumping tubes in fluid communication with the ink reservoirs and the ink dispensing pen, each tube having a flexible wall portion;
 - movable occluding surfaces on a first side of the pumping tubes;
 - independently movable occlusion fingers on a second opposite side of the pumping tubes, wherein the fingers are integrally formed as a single unitary body; and
 - springs independently resiliently biasing the occlusion fingers towards the pumping tubes; and
- a drive system configured to move the occluding surfaces so as to compress the tubes against the fingers.

41. (New) An occlusion for use in a peristaltic pump, the occlusion comprising:

- independently movable occlusion fingers, wherein the fingers are integrally formed as a single unitary body and wherein each of the fingers is configured to support a fluid coupler.